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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,358	06/26/2003	Naohiko Kikuchi	1403-0250P	4535
2292	7590	05/16/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			MAKI, STEVEN D	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

1733

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/606,358

Applicant(s)

KIKUCHI ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 9 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 1, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (EP 1072446) in view of Marzocchi 059 (US 3364059) and Marzocchi 280 (US 3620280).**

Uchida discloses a studless tire having a tread comprising diene rubber and short glass fibers oriented in the thickness direction wherein  $1.1 \leq E1/E2 \leq 4$  and the hardness is 45-75 degrees. The glass fibers have an average fiber diameter of 1-100 micrometers (preferable 3-50 micrometers) and an average length of 0.1-5 mm (preferably 0.1-3 mm). Uchida expresses a desire for the fibers to remain bound to the rubber of the tread to prevent the fibers from dropping from the tread surface during running and thereby deteriorating the effect of pushing the water film generated between the frozen road surface and the tire surface (paragraphs 13, 16). Uchida therefore substantially discloses the claimed invention except for surface treating the short glass fibers.

Marzocchi 059, directed to glass fiber elastomeric systems, teaches that the development of a strong and permanent bonding relationship between glass fibers and elastomeric materials is faced with a number of problems which are peculiar to glass fibers. Glass fibers are non-porous and have smooth surfaces. Elastomeric materials are unable to achieve anchorage and are unable to establish a strong grip on the

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smooth surfaces. Furthermore, the smooth surfaces are dominated by groups which impart hydrophilic characteristics whereby the glass fiber surfaces are preferentially receptive to moisture by comparison with elastomeric materials. As a result, any bonding relationship that is capable of being established between such materials is markedly diminished by the water film that immediately forms to separate the elastomeric material from the glass fiber surfaces in the presence of moisture.

Marzocchi 059 teaches improving the bonding relationship of glass fibers with rubber by treating the glass fibers with a treating composition containing an anchoring agent in the form of an organo silicon compound or a Werner complex compound in which an organic group attached to the silicon compound contains an SH group and in which the carboxylato group coordinated with the chromium atom of the Werner complex compound contains an SH group. Marzocchi 059 teaches that the glass fibers may be continuous glass fibers, staple glass fibers or chopped glass fibers. Marzocchi 059 teaches that the elastomer includes natural rubber and synthetic rubber. Marzocchi 059 teaches that a strong bonding relationship between the glass fibers and the elastomeric material is retained even in the presence of moisture. See columns 1 and 2.

Marzocchi 280 discloses a pneumatic tire having a tread comprising rubber and chopped structures 83 (figure 5). The chopped structures 83 are made from a yarn comprising glass filaments wrapped about an organic core. During manufacture of the yarn and prior to incorporation of the chopped yarn into the tire tread, the glass filaments are treated with an anchoring agent (col. 5 lines 57-68).

As to claims 1, 9 and 12, it would have been obvious to one of ordinary skill in the art to treat the short glass fibers of Uchida with an anchoring agent (surface treating agent) comprising sulfur containing mercaptosilane to improve adhesion of the short glass fibers to the rubber of the tire tread since (1) Uchida expresses a desire for the glass fibers to remain bound to the rubber of the tread to prevent the glass fibers from dropping from the tread surface so as to prevent deterioration of the effect of pushing the water film generated between the frozen road surface and the tire surface (paragraphs 13, 16) and (2) the secondary art to Marzocchi 059 and Marzocchi 280 provide ample motivation (strong bond between glass fibers and rubber even in the presence of moisture) to treat Uchida's glass fibers for a rubber tire tread with an anchoring agent comprising sulfur containing mercapto silane.

Applicant argues that Uchida fails to disclose the use of a surface treating agent. Examiner agrees that Uchida is silent as to the use of a surface treating agent.

Applicant states: "In fact, the European reference [Uchida] appears to achieve the desired anchoring by controlling the diameter of the fibers as well as the length of the fibers." (page 3 of response filed 3-6-06). Examiner agrees that Uchida desires anchoring the glass fibers in the rubber such that the fibers do not fall out of the rubber.

With respect to applicant's argument that Uchida is not looking to solve the problem of separation of the glass fibers from the rubber material, examiner notes that Uchida, Marzocchi 059 and Marzocchi 280 incorporate glass fibers in rubber and that Marzocchi 059 and Marzocchi 280 recommend treating glass fibers with an anchoring

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agent in the form of "sulfur containing mercapto silane" before incorporating glass fibers in rubber.

Applicant argues that Marzocchi 059 does not suggest the use of glass fibers in a studless tire. More properly, Marzocchi 059, like Uchida, uses glass fibers in rubber and appraises one of ordinary skill in the art of the well known problem of anchoring glass fibers in rubber. Marzocchi 059 motivates one of ordinary skill in the art to treat the glass fibers with an anchoring agent ("sulfur containing mercaptosilane") to obtain a strong bond between the glass fibers and the rubber so that that the glass fibers are better able to contribute their properties to products fabricated with glass fibers.

Applicant argues and the examiner agrees that Marzocchi 280 teaches forming a yarn by wrapping a glass filament about an organic core, chopping the yarn into short lengths and incorporating the short lengths in tread rubber such that the short lengths are randomly oriented. However, examiner adds that Marzocchi 280 treats the glass filament with an anchoring agent in the form of "sulfur containing mercapto silane" before incorporating the short lengths in the tread rubber.

Applicant argues that the claimed invention exhibits unexpected results of improved braking properties and abrasion resistance properties as evidenced by examples and comparative examples of the specification. The examples in the specification have been considered but are not persuasive of obviousness since (1) Uchida, directed to a tire tread comprising radially oriented glass fibers and having improved braking performance on ice and abrasion resistance, teaches binding the fibers to the rubber of the tread to improve braking performance on ice (preventing the

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fibers from dropping from the tread surface so that the fibers can push water away and thereby improve digging and adhesion / scratching friction) and (2) Marzocchi 069 and Marzocchi 280 motivate one of ordinary skill in the art to use the claimed surface treating agent on Uchida' glass fibers to form a strong bond between the glass fibers and rubber and retain this strong bond even in the presence of water. It is emphasized that Uchida's tire with radially oriented short glass fibers in the rubber tread has improved braking performance on ice and improved abrasion resistant and that the secondary art strongly motivates one of ordinary skill in the art to treat glass fibers with an anchoring agent to deal with the well known problem of bonding glass fibers to rubber. The results of braking properties and abrasion resistance naturally flow from Uchida's teaching to use glass fibers in tread rubber to improve braking properties and abrasion resistance and the secondary art's teaching to use an anchoring agent to improve the bond between glass fibers and rubber and thereby obtain fuller utilization of the desirable properties of the glass fiber component. See col. 2 lines 16-71 and col. 3 lines 1-20 of Marzocchi 059. No unexpected results has been shown for treating the glass fibers using "sulfur containing mercapto silane" instead of treating the glass fibers using some other anchoring agent.

#### Remarks

- 3) Applicant's arguments filed 3-6-06 have been fully considered but they are not persuasive. Applicant's arguments are addressed above.
- 4) No claim is allowed.

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5) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki  
May 12, 2006

  
**STEVEN D. MAKI**  
**PRIMARY EXAMINER** 5-12-06